

Bottom-Up Money

Fair, stable, resilient — envisioning a free market
in supplier-issued basic income currencies.

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Abstract

We propose a decentralized system of monetary governance formed from an ecosystem of freely-formed coexisting UBI (universal basic income) currencies, each backed and governed by its own network of suppliers. The scheme creates an incentive for suppliers to issue the quantity of currency that maximizes profits while keeping their currency value stable. Since new money would be created solely through UBI, all seigniorage goes to the UBI recipients, thus removing perverse incentives for the issuing body and optimizing the money supply according to Pareto efficiency. Distribution of new money via a global UBI additionally ensures a minimum level of liquidity in currency exchange markets. Furthermore, optional features such as a demurrage rate may be set in the currencies, tailored by each issuing body as a stabilizing mechanism or determined by global consensus as a tool for taxation.

1. Introduction

Monetary policy plays an enormous role in the health of modern economies, yet there are many who remain uneasy with the outsized, undemocratic, or at times mercurial influence of states, central banks, and the banking industry, on the world's currencies. There are even some who view discretionary monetary policy itself as a destructive force, and would return to the gold standard or its digital equivalent (e.g. Bitcoin), also known as commodity money. However, the random availability or scarcity of commodity money can impose artificial limitations on growth (therefore causing economic inefficiency). To surmount these limitations, most economists agree it is necessary to have a currency that can expand at a rate commensurate with economic growth. We must therefore have some flexible system of money creation and thus, monetary governance as well (rules as to who creates money, and how much).

This proposal takes the “money view”¹ perspective that central banks, private banks, and shadow banks serve a vital purpose in the economy; that is, they provide the necessary liquidity for a growing economy. Nevertheless, we are highly critical of existing monetary and banking institutions. Unlike gold bugs and Bitcoin maximalists, our objection is not with the concept of dynamic monetary policy itself, but instead with its governance and money creation mechanisms.

This paper therefore lays out an argument for a decentralized² system of monetary governance formed from an ecosystem of freely-formed coexisting “plain”³ currencies, each issued through a universal basic income (UBI), and each backed and governed by its own network of suppliers⁴. We begin with a discussion of seigniorage, followed by an analysis of fiat value, and finally an exploration of monetary tools and governance. We conclude with an in-depth description of the proposed novel currency system.

2. UBI through the lens of seigniorage reform

Quantifying (or indeed, defining) seigniorage in the modern world is not straightforward.⁵ Traditionally, seigniorage refers to the special “income” earned through creating new money and

¹ The “money view” is an economic framework constructed by Dr. Perry Mehrling, which “places banking at the center of attention, views banking as fundamentally a swap of IOUs, and views money as nothing more than the highest form of credit.” From [Can Bitcoin Replace the Dollar?](#) (Mehrling 2017)

² “Decentralized” can be an ambiguous word; it is used here to imply a reform to a centralized system, and in particular describes a “multi-centered” system.

³ We refer to “plain sovereign money,” also known as “single-circuit” money, similar to a “full reserve” system. For a brief overview, please see [Synopsis of 100% reserve versus plain sovereign money](#) (Huber n.d.). For an in-depth comparison, please see [The Chicago Plan \(100% Reserve\) and Plain Sovereign Money](#) (Huber 2015).

⁴ A supplier is broadly defined here as an entity with the ability to produce some good or service that is sufficiently in demand. Anyone with access to the factors of production (land, labor, or capital) is considered a supplier.

⁵ For an explanation of the four types of seigniorage in the modern economy, we suggest [Seigniorage in the 21st Century](#) (Bjerg, McCann, Macfarlane, Hougaard, Nielsen & Ryan-Collins 2017). For a more general overview, we suggest [Creating New Money](#) (Huber & Robertson 2000).

then spending it into the economy.⁶ For example, it costs the U.S. Treasury \$0.14 to print a \$100 bill, yielding the government a theoretical profit or seigniorage of \$99.86 per bill.⁷ Seigniorage has been the coveted right of sovereigns for centuries, and has certainly seen a good measure of abuse⁸ over that time. But despite the unflattering connotations attached to the idea of “printing money,”⁹ if there is to be a growing money supply then seigniorage must arise *somewhere*.

2.1. Bank seigniorage

A growing money supply is considered necessary for a growing economy, or else that economy may be subject to liquidity constraints and deflation.¹⁰ Such monetary growth is a normal occurrence today, even if money is not explicitly “printed.” Instead, the vast majority of new money in today’s financial system takes the form of loans created by private commercial banks in the so-called “fractional-reserve” lending process.¹¹ Because these banks are both explicitly (e.g., FDIC in the United States) and implicitly (“too big to fail”) backed by government¹², and because there is a dearth of digital payments services available to those who would rather not lend their money simultaneously¹³, bank money (sight deposits) take on all the characteristics of real money. Commercial banks are thus the ones who find themselves reaping the benefits of most seigniorage, as they are the de facto monetary issuing bodies of our time. Huber and Robertson estimated the total annual seigniorage accrued as bank profits to be roughly “£49bn in the UK, \$114bn in the USA, more than €160bn in the Euroarea, and ¥17.4 trillion in Japan.”¹⁴

⁶ The word “seigniorage” is derived from “seigneur,” literally meaning “lord.” It historically refers to the right of the lord to mint coins.

⁷ See the Federal Reserve online article [How much does it cost to produce currency and coin?](#) (2019).

⁸ Episodes of hyperinflation abound, Weimar Germany in 1923 to Zimbabwe in 2008.

⁹ In the words of Milton Friedman: “It has become common to regard inflation produced by the issue of fiat money as a tax on cash balances.” ([Government Revenue from Inflation](#), 1971) Today it is a knee-jerk sentiment to expect such inflation. For example, on the author’s Twitter feed recently she was able to enjoy a [tirade](#) of irate responses to ECB Chief Economist Peter Praet’s QE comment: “As a central bank, we can create money to buy assets.”

¹⁰ For an explanation, see [Money Growth Does Not Cause Inflation!](#) (Harvey 2011).

¹¹ For a discussion of how private banks create money, see this report from the Bank of England: [Money creation in the modern economy](#) (McLeay, Radia & Thomas 2014).

¹² This also means banks can lend money irresponsibly and yet be assured that in times of trouble, they will be bailed out (i.e., a moral hazard).

¹³ In describing commercial bank opportunity cost seigniorage: “... the banking sector as a whole has a near monopoly on the store of value function of money as well as on the medium of exchange value through the processing of payments... In our contemporary banking and money system the boundaries between lenders and money users has become blurred. If money users want to store their value in money or make electronic payments they are compelled to essentially lend their money to the bank. ...since deposits function as money, money users are prepared to accept a relatively lower interest on them. Keynes (2007) refers to this as a 'liquidity premium'. The logic of the definition is similar to the one found in discussions on conventional central bank seigniorage, where people are prepared to hold physical currency even though they do not receive any interest on this money. Commercial bank opportunity cost seigniorage is the difference between this interest (if any) actually paid on deposits and a market benchmark interest, which is the interest that the bank would have had to pay if deposits were not simultaneously liquid money.” From [Seigniorage in the 21st Century](#) (Bjerg et al. 2017). One answer to artificially low bank deposit interest rates would be to offer universally accessible, interest-bearing central bank digital money, thereby improving competition, as suggested in [The Macroeconomics of Central Bank Issued Digital Currencies](#) (Barrdear & Kumhof 2016).

¹⁴ [Creating New Money](#) (Huber & Robertson 2000), page 84.

Whether this is due to the power of “special interests” or just an accident of history, there is currently no indication of change to that system in the foreseeable future.

Seigniorage reform, also called “plain money” reform, has been proposed several times over the years, with surprisingly limited attention.¹⁵ The obvious response to the situation would be to nationalize money creation, removing seigniorage from private banks and returning it to the state; the extra income would simply be added to the state budget.

2.2. Seigniorage reform through UBI

A different approach is to grow the money supply through universal basic income, or UBI. This, too, is a concept that has appeared in a few different forms¹⁶; in a previous work the author refers to this mechanism of money creation as a “monetary UBI.”¹⁷

To delve into this idea, we will borrow a bit of game theory. Imagine two friends sitting down to share a cake. In order to ensure the fair division of the cake, one friend is designated responsible for cutting it into two halves, while the other gets to choose which half to eat. The first friend is thus forced to cut the two halves as equally as possible. She may be allowed to oversee the division of resources, but she will not be able to benefit at the expense of her friend.¹⁸

Distributing seigniorage to citizens via UBI would have a similar effect on the monetary issuing body. It is a way of ensuring that the government can create new money when necessary; however, such creation does not directly benefit the government or bank owners.¹⁹ Thus seigniorage via UBI means that the entity issuing and monitoring the money supply would not be subject to perverse incentives (i.e., will not favor financial industry interests over those of the citizens).

2.2.1. UBI and demurrage as straightforward monetary transmission mechanisms

The reverse is possible as well: such an entity could *shrink* the money supply in a uniform way through imposing a demurrage. A demurrage is like a negative interest rate: money subject to a demurrage loses value over time. Since a demurrage would apply equally to all money already in circulation, it would enable the issuing body to devalue *existing* wealth. In contrast to UBI, this

¹⁵ Huber and Robertson define seigniorage reform in two parts: “1) Central banks should create the amount of new non-cash money (as well as cash) they decide is needed to increase the money supply, by crediting it to their governments as public revenue. Governments should then put it into circulation by spending it. 2) It should become infeasible and be made illegal for anyone else to create new money denominated in an official currency. Commercial banks will thus be excluded from creating new credit as they do now, and be limited to credit-broking as financial intermediaries.” From [Creating New Money](#) (Huber & Robertson 2000)

¹⁶ See [Funding Basic Income By Seigniorage](#) (Huber 2000); [A monetary approach towards an unconditional basic income in Greece](#) (Jourdan 2012).

¹⁷ See [Roadmap to a Government-Independent Basic Income Digital Currency](#) (Howitt 2019).

¹⁸ This is the classic “divide and choose” procedure for “envy-free” cake-cutting.

¹⁹ Such a government could turn around and immediately raise taxes, but let’s assume that it is easier for a monetary authority to distribute money via UBI than for a fiscal authority to take it back with taxes.

would affect everyone differently; the wealthy would lose more than the poor, even though everyone would lose an equal *percentage* of their wealth.²⁰

The distribution of new currency through UBI, and the uniform destruction of currency through demurrage, together represent exciting new tools for monetary policy. Such a monetary transmission mechanism would give the issuing body direct control over the money supply and inflation rates while ensuring that the benefits thereof flow directly to the citizenry.

2.3. Understanding bank seigniorage as a stimulus for the economically privileged

Some advocates frame UBI as an economic stimulus, a mechanism to raise consumer demand in order to activate untapped resources.²¹ If bank seigniorage were converted into a monetary UBI, it may indeed play a stimulative role. How can we compare this with the effects of bank seigniorage as-is on the economy?

Logically, bank seigniorage today is also a form of stimulus, in that it indirectly provides extra resources to one segment of the population, principally bank shareholders—arguably a privileged sector of society. (This is distinct from the stimulus banks provide via lending.) Bank seigniorage perhaps boosts the economy by allowing the average beneficiary to upgrade from their million dollar house to a million-and-a-half dollar house. This is in contrast to UBI, which creates a broad stimulus among all consumers.

So bank seigniorage is a successful stimulus in the sense that an economy with the untapped capacity for more million-and-a-half dollar houses would, with this added liquidity, suddenly be able to create them. However, this arguably is not a fair distribution of resources. For example, the workers building million-and-a-half dollar houses could feasibly have been employed in building affordable housing, at greater benefit to the overall economy and society. And perhaps million-and-a-half dollar houses would still eventually get built, after the stimulus had time to “trickle up.”

Why do governments favor bank owners as seigniorage beneficiaries? Alternative arrangements are possible.

3. Usability: fiat’s secret sauce

Fiat money has no intrinsic value, that is, it is not a commodity nor is it backed by any commodity. Similarly, Bitcoin²² has no intrinsic value, except for those who enjoy warming themselves by the heat of an overworked CPU. These types of money therefore show us that a

²⁰ If any money is held by an issuing body, this would act as a disincentive for a demurrage. However, if there is some expected revenue anticipated by a higher money velocity, and this revenue is greater than the amount to be lost through demurrage, then the issuing body would have incentive to implement a demurrage. For example, a demurrage may be a strategic tool for government if this incentivizes citizens to pay their taxes early, incidentally a potential factor in the famous miracle of Wörgl (See [A Free Money Miracle?](#), Goodwin 2013).

²¹ For example, see [There’s Only One Way to Pay for a Basic Income](#) (Howlett 2018).

²² Bitcoin may or may not fit the definition of fiat money (in this context, we consider this a semantic issue).

useful currency need not have intrinsic or representative value; what is often less clear is where its value *does* come from.

3.1. Defining *push* and *pull* authorities

We propose that there are two kinds of entities that have the power to bestow value on a purely monetary currency: we can call these the *push* and *pull* authorities. These authorities work their magic by giving a currency *usability*. A *push* authority uses the force of law to require use of its favored currency while restricting or punishing others (e.g., by obliging banks to hold reserves, or constituents to pay taxes, in a sovereign currency²³). On the other hand, a *pull* authority is a supplier of some good or service that is sufficiently in demand, such that it can passively attract payments in its desired currency while boycotting all others.²⁴

3.2. Oil suppliers as a *pull* authority on the U.S. dollar

The latter is the interesting bit. For example, consider the U.S. dollar. The dollar is pure fiat currency, meaning it is not backed by any commodity: it is money simply because the U.S. government has declared it so.²⁵ Despite its lack of intrinsic or representative value, the U.S. dollar accounts for about 62% of global central bank reserves.²⁶ While there are many reasons for this, one contributing factor to the phenomenon is that petroleum sold for U.S. dollars, the so-called “petrodollars.”²⁷ Oil sellers appear happy to hold their oil wealth in dollars, thus oil buyers are forced to maintain or buy dollars as well.²⁸ If oil suppliers were to suddenly price their goods in Chinese yuan, things would be very different for United States monetary policy.

3.3. The untapped power of *pull* authorities

The example of petrodollars demonstrates that those who hold sway over the factors of production have the power to create *pull* or “usage demand” for a currency. They merely need to sell their goods denominated in whichever currency they prefer.

This is normally done for the purpose of maximizing their own benefit, and therefore the supplier is likely to select the most stable and useful currency for its own spending needs. However, there are other factors to consider. For example, suppliers in depressed towns sometimes elect to use local or community currencies. These currencies may provide additional benefits to the suppliers, perhaps in the form of a local stimulus and recaptured seigniorage. Similarly, there exist

²³ Similar to the “state theory of money.”

²⁴ One could describe the push-and-pull view as a “state-agnostic” chartalist perspective.

²⁵ This has been the case ever since the U.S. abandoned the gold standard in 1971.

²⁶ For an exploration of the U.S. dollar’s position as world currency, see [The Dollar Is Still King. How \(in the World\) Did That Happen?](#) (Goodman 2019).

²⁷ For an overview, see [How Petrodollars Affect The U.S. Dollar](#) (Thiha Tun 2018). Both these articles touch on the point: [The dollar can defend its global reserve role against EU and China](#) (Greene 2018), and [The Dollar's Days As Reserve Currency May Be Numbered](#) (Power Hedge 2018).

²⁸ Oil suppliers presumably prefer to hold U.S. dollars because the United States has a stable government and trustworthy monetary authority, as well as the second largest economy in the world.

suppliers today who prefer to transact exclusively with cryptocurrencies.²⁹ This may have to do with account security, privacy, or transaction fees, but it may also be done for political reasons.

4. A discussion of monetary tools and governance

4.1. Some criticisms of modern monetary tools and governance

The U.S. dollar is relatively stable and widely accepted. Nevertheless, we offer some open questions about whether this currency model, as well as others like it, may suffer from structural weaknesses.

4.1.1 Lags in monetary policy: weaknesses of centralization and indirect monetary tools

Central bank monetary governance is a slow process: it can take a year before a change in monetary policy actually affects the economy.³⁰ The causes of monetary policy time lags can be organized into three broad categories: the recognition lag, the administrative lag, and the operation lag.

The recognition lag describes the time it takes for policy-makers to detect an issue in the economy, and it is estimated to take three to six months. It is possible that this is related to the centralized, top-down nature of policy changes. Decisions are based on bodies of research that start at the level of local businesses but must pass through several levels of interpretation and consolidation. Because this mechanism of information analysis is by nature slow, policy-makers typically are sluggish in detecting fluctuations in economic activity.

The administrative lag refers to the internal governance process. It is possible that central banks, which are very powerful and thus highly regulated, may be overly bureaucratic in this regard; although it is equally possible that the existing framework provides necessary process and accountability.

The operation lag refers to the efficiency of the monetary transmission mechanisms. This is the area of monetary policy subject to the most criticism. The available tools allow central banks to push the economy only in very indirect ways.³¹ Changes to balance sheets and interest rates may take anywhere from a few months to a few years to affect the economy, depending on the goals of these adjustments.³²

²⁹ For example, there is a cafe called Bitcoin Coffee at the Paralelni Polis in Prague. If you wanted to purchase a beverage there, you would first have to convert your fiat money into crypto.

³⁰ For more on the topic, see [The Lag from Monetary Policy Actions to Inflation: Friedman Revisited](#) (Batini & Nelson 2001).

³¹ For a schematic depiction of the complex transmission mechanism influencing the economy and price levels, see [Transmission mechanism of monetary policy](#) (European Central Bank, n.d.).

³² Friedman argued, controversially, that countercyclical monetary policy plays a destabilizing role due to these time lags, aggravating rather than softening fluctuations in the economy. He favored a fixed, automatic growth of the money supply.

4.1.2. Efficacy of monetary transmission mechanisms

In addition to efficiency concerns regarding time lags, there is some question about the *efficacy* of monetary transmission mechanisms at the disposal of central banks, commonly referred to as imperfect pass-through.³³ This is likely related to the structural complexities discussed in the previous section. Central banks may push the economy only in very indirect ways, whereas private banks (as the de facto money creators) in fact have more direct control of the money supply (but have different priorities).

4.1.3. Legitimacy of the monetary authority

This raises the additional concern of whether governance in such a system is adequately independent or equipped to serve a democracy. Central banks may sometimes earn a profit but they are nevertheless legally mandated to serve the public interest; private banks, however, have no such obligations. Therefore, democracy plays little role in contemporary monetary governance in comparison with the discretion of commercial banks. This may manifest itself in the form of an economy increasingly characterized by credit-fueled instability.

4.1.4. Loss of resilience in a monetary monoculture

In natural complex ecosystems, there tends to be a tradeoff between efficiency and resilience.³⁴ Bernard Lietaer notably argued that our economy is one such ecosystem, and that an excessive focus on efficiency is what underlies our neverending banking crises.³⁵ In his view, the monopoly of bank-debt money over our monetary system comes at the expense of its resilience.

Supporters of the resilience view advocate for the adoption of complementary currencies. Their goal would be to develop an ecosystem of many diverse currency types, with multiple pathways between them.

4.2. Alternative monetary transmission mechanisms

In section 2.2.1 we proposed the idea that money creation through UBI and money removal through demurrage represent exciting new tools for monetary policy. This is because they could address some of the concerns touched upon in sections 4.1.1 and 4.1.2, in regards to the operation time lag and imperfect pass-through. In both situations, the weakness of the transmission mechanism is its indirectness. In contrast, UBI and demurrage are straightforward, direct ways to affect the money supply. Using UBI explicitly as a monetary tool is not a new

³³ For a report from the World Bank, see [Interest Rate Pass-Through: A Meta-Analysis of the Literature](#) (Gregor, Melecký & Melecký 2019).

³⁴ Here we assume the following definitions of efficiency and resilience: “1) Efficiency: a network’s capacity to perform in a sufficiently organized and efficient manner as to maintain its integrity over time (May 1972); and 2) Resilience: a networks reserve of flexible fall-back positions and diversity of actions that can be used to meet the exigencies of novel disturbances and the novelty needed for on-going development and evolution (Holling, 1973, 1996; Walker, et al., 2006).” From [Options for Managing a Systemic Bank Crisis](#) (Lietaer, Ulanowicz & Goerner 2009).

³⁵ For a discussion on systemic instability of our financial system, see [Monetary Monopoly as Structural Cause for Systemic Financial Instability?](#) (Lietaer 2011).

idea; it was suggested by James Meade in the 1930s³⁶ and is today most often invoked with Milton Friedman’s term “helicopter money.”

4.3. Alternative systems of monetary governance

We now discuss some alternative systems of monetary governance which may or may not address the concerns raised in section 4.1.

4.3.1. Hayekian free market in currencies

Friedrich Hayek famously criticized the idea of a government monopoly on money, and instead imagined that good monetary policy would naturally arise from a free market in independently-issued bank notes.³⁷ Note that Hayek’s characterization of such bank notes bears little similarity to bank deposits of today, which are redeemable in fiat currency—or indeed, to the old idea of “free banking,”³⁸ in which bank notes are backed by specie or fixed reserves. In contrast, Hayek’s bank notes are totally non-redeemable; they themselves are a sort of fiat currency. Selgin and White (1994) referred to this idea as “fiat-type private money.”³⁹

Hayek imagined that stability would manifest organically through competition between these private currencies; each bank would be incentivized to ensure the stability of its proprietary currency or risk damaging its name and falling into obscurity. Interestingly, the idea that competition between currency issuers may incentivize better base currency has resurfaced in the era of cryptocurrencies.⁴⁰

4.3.2. Supplier-issued currencies

Earlier, we discussed the difficulty involved in bank-managed stability: the central bank must be constantly observing and analyzing local businesses to be able to predict patterns in growth. Why not give the businesses themselves control over managing currency stability? These suppliers arguably have equal or better information about their industry, and thus may be in a unique position to successfully optimize a currency supply in regards to the real availability of resources and expected demand. In addition, as long as the supplier-issuer guarantees to accept the currency (a *pull* authority), it would seem to have a vested interest in keeping that currency stable.

You might compare this idea to that of countries issuing their own fiat currency and using it in international trade. Each country ultimately backs the value of its currency with the health of its economy, and thus has the incentive to keep the currency’s value stable relative to other currencies.

³⁶ “In Planning and the Price Mechanism this device was cast as “useful in avoiding inflation and deflation”; in Outline for an Economic Policy as enabling “to control the amount of national income spent on consumption and the amount allocated to capital development”.” [From James Meade’s ‘Social Dividend’ to ‘State Bonus’: An Intriguing Chapter in the History of a Concept](#) (Van Trier 2018)

³⁷ See [Denationalization of Money](#) (Hayek 1976).

³⁸ See [The Modern Free Banking School: A Review](#) (Gedeon 1997).

³⁹ For a critical discussion of “Competing Noncommodity Base Monies,” see [How Would the Invisible Hand Handle Money?](#) (Selgin & White 1994), page 1733.

⁴⁰ See [Cryptocurrencies and the Denationalization of Money](#) (Luther & White 2018).

An economy with a diversity of supplier-issued currencies would look very similar, except these currencies would be backed by freely-formed supplier networks rather than a national economy. Suppliers would have an incentive to mint the optimal amount of currency to maximize their own profits, while maintaining a stable rate of exchange with other supplier-currencies. (The “real” unit of value, or the unit of account in such a system, would in fact be a weighted basket of currencies, similar to Special Drawing Rights (XDR) or the now-defunct European Currency Unit (ECU).)

In effect, this is what several cryptocurrencies boil down to. Rather than unilaterally representing stock in a company or some arbitrary unit of scarcity, some of these currencies are valued subject to the services their respective platforms provide. For example, Siacoin can be used to purchase space on the decentralized cloud storage provider Sia. Similarly, Golem is a decentralized platform for renting computational power, accepting payment only in Golem Network Tokens. And the Basic Attention Token is a digital advertising currency that is built into the new Brave web browser. In a way, these real services are the “reserves” that back the value of each respective currency.

4.3.3. Criticism of these models

One thing these models may struggle with is a process for ensuring adequate depth and liquidity in the currency exchange market, and thus consistently up-to-date valuations of their own currencies. A failure here would hinder other suppliers from appraising its value correctly and therefore make it difficult to use as currency.

More importantly, neither of these models provide an egalitarian system for distributing seigniorage. Indeed, most cryptocurrencies are in limited supply (like gold), so even in the case of wide adoption, it seems inevitable that these would come to be replaced by a seigniorage-guzzling fractional reserve banking system.

5. An ecosystem of competing supplier-issued UBI currencies.

We now propose a novel currency system which integrates seigniorage reform, the power of *pull* authorities, straightforward monetary transmission tools, and a decentralized approach to monetary policy.

5.1. A hypothetical supplier-issued UBI currency simulation: Guerrilla Goulash

In a world with food insecurity, food waste, and unemployment, the problem appears to be that *people don't have enough money for food*, rather than that society lacks the resources to feed them. It could make sense in this case to simply create new money, thereby adding a bit of liquidity to the system. Imagine a new vendor called Guerrilla Goulash⁴¹ whose business model is to rescue food from being thrown out and instead use it to make delicious goulash. The new soup squad uses one day's food collection to make goulash for 1000 people. It also creates 1000

⁴¹ A fictional vendor inspired by the Socialist Snack Squad, Food Not Bombs, and Foodsharing.de. These real organizations successfully operate on volunteer labor and excess food donations.

vouchers, each good for a serving of goulash, and distributes them equally to everyone in a town of 1000 inhabitants, as a portion of a UBI. Anyone may receive a goulash serving by presenting a voucher; the vendor does not accept cash. Thus people who want more goulash may bargain for vouchers from people who don't, and a natural market price for these vouchers emerges. Eventually, the vendor sells out of its 1000 bowls of goulash, earning in revenue 1000 vouchers.

It would appear the vendor can't do anything with its revenue, since the only merchant who accepts goulash vouchers... is itself. But it turns out, that's not so bad. This vendor has become a *pull* authority, anchoring the value of its own currency in the goods it promises to supply: anyone intending to purchase goulash must first buy its vouchers. Meanwhile, the first batch of goulash has already demonstrated the real market value of these vouchers. Other merchants, employees, and people in the community (even those who don't like goulash), knowing its market value, can therefore confidently accept goulash vouchers as a medium of exchange—assuming they trust the vendor to continue producing quality goulash for the foreseeable future.

The goulash vouchers now start to look like currency. To maintain stability, the vendor must continue to produce a steady supply of goods, perpetually backing the value of the vouchers. In general, such a vendor should aim to guarantee that the level of expected demand (indicated by the quantity and velocity of vouchers in circulation) approximately reflects the amount of goods they will be able provide at any one point in time.

Note that the vouchers even become currency to the vendor itself. If it needs to buy supplies (such as pots and pans), it can sell vouchers at the market price. It could even pay employees with vouchers.

The interesting thing about allowing merchants like Guerrilla Goulash to print their own currency is that it gives real business owners individual control over monetary expansion. It would be in each one's interest to "print" the maximum sustainable amount of its UBI currency because doing so would stimulate demand and raise profits. However, it is equally in their interest not to create too much, causing inflation, since this is the currency in which they make their profits. Such a situation theoretically would result in the money supply reaching Pareto efficiency.⁴²

In practice, Guerrilla Goulash probably would be too small an enterprise to issue its own currency—a consistent rate of demand would be ideal, to maintain a minimum number of currency buyers and therefore liquidity in the currency exchange. In addition, townspeople might view Guerrilla Goulash as a risky enterprise (what if the town becomes more efficient at using food supplies, reducing the extra food available and constricting goulash production?). It is therefore more likely that larger networks of trusted merchants or labor unions would cooperate to produce one UBI currency, both to maintain currency liquidity and also to mitigate consumer

⁴² A Pareto improvement is one which makes the situation better for one or more parties without making the situation worse for anyone. In this case, the supplier is incentivized (out of self-interest) to make Pareto improvements to the money supply: it would aim to issue a sustainable amount of money (good for everyone), but would not willingly cause inflation (bad for everyone).

risk. However such networks would presumably not grow too large, since the larger they grow, the less influence each member merchant would have in setting monetary policy.

5.2. Some numbers

What would this UBI system really look like? Suppose there exists a labor union in the U.S. consisting of 500,000 members, with an average expected salary of \$52,000 per laborer per year, or \$1000 weekly. It is a network large enough to generate consistent demand, but theoretically not so large that union members must sacrifice control over its internal governance. The union would want to “print” precisely the right amount of dollars to correspond with the number of laborers, multiplied by each one’s expected salary, and divided by the expected currency velocity (regular rate of demand). Assuming union members are typically paid weekly, we calculate:

$$500,000 \text{ members} \times \$1000 \text{ paycheck} = \$500,000,000 \text{ labor dollars in circulation}$$

The union should therefore create five hundred million labor dollars. Note that this is a rough estimation which does not take into account potential complications due to the currency’s behavior in the financial world (e.g. it could be necessary to create extra labor dollars if they are adopted as a prominent means of payment outside the labor union).

5.3. Distribution and circulation

These dollars would initially be divided evenly across global UBI recipients as fractional labor dollars. The vast majority of these UBI recipients, who have no need for labor in the United States, would then sell their dollars on the open market. Labor-reliant factories in the United States would be obliged to purchase these labor dollars at a market rate, and use it to pay the salaries of the laborers in the union. In turn, the laborers would need to continually exchange their earned labor dollars for dollars accepted by restaurants, grocery stores, housing complexes, educational or health facilities, etc. Crucially, as long as demand for the labor dollars remains competitive, laborers should be able to reliably convert their income from their internal currency into their preferred external (i.e. consumer) currency.

5.3. Saving and investing

Citizens in such an economy who aim to save money in the safest possible way would be encouraged to diversify their currency holdings. Perhaps several different trusted currency baskets⁴³ would emerge. This would be analogous to holding multiple individual accounts at different central banks, an option that is not available to most people today. Those who aim to earn a higher return on their money would be free to invest it at competitive rates by using the classic banking infrastructure, which would, under this system, be largely limited by default to a role of pure intermediary between lenders and borrowers. (Banks creating credit via a fractional reserve type of procedure would not be backed by any government guarantee, and would thus be treated with great caution.)

⁴³ The author likes the term “currency cocktails.”

5.4. Monetary policy tools

How might suppliers use monetary policy tools to their advantage? Earlier, we discussed some criticisms of the efficacy of traditional monetary transmission mechanisms. Here we outline how suppliers might use previously suggested monetary tools (UBI money creation and demurrage) in a way that may have some advantages over traditional mechanisms. Note that suppliers are in a special position to effect monetary policy, as they presumably possess valuable first-hand knowledge of their industry.

5.4.1. Inflation targeting

First of all, suppliers would be free to adopt inflation-targeting practices similar those of existing central banks. They could do this by regularly creating an increasing amount of new currency through UBI. Interestingly, the same effect may be achieved by implementing some rate of demurrage alongside equivalent injections of new UBI currency; in a system where all money creation occurs through UBI, inflation and demurrage are mathematically just two sides of the same coin. Using demurrage instead of inflation would have the conceptual advantage of preserving a stable unit of account.

5.4.2. The special case of demurrage

Under a demurrage, all money-holders would lose an equal proportion of their wealth. If it is ever necessary to remove money from the economy, this would appear to be a fair way to do it.

Under what circumstances might this be necessary? Demurrage currency has been suggested to inevitably result in a bank run⁴⁴, but if the bank “reserves” are perishable goods, this could be highly desirable. Certain suppliers may opt to raise their rate of demurrage in order to increase the velocity of money, ultimately encouraging consumers to *buy now*. It may seem counterintuitive for a supplier to reduce the holding value of their own currency, but this could be a useful tool for suppliers of perishable goods. In fact, this was the original philosophy behind implementing a demurrage: that money should decay like many real goods.

Would the authority to manipulate demurrage rates result in perverse incentives on the monetary issuing body? Raising the demurrage rate to promote increased revenue might seem an abuse of power. However, this would be done only for the purposes of maximizing time-sensitive resource use to benefit everyone, since the supplier would not want to devalue its currency (and thus its own profits) more than necessary.

5.4.3. The self-sovereign stimulus

Another aspect of decentralized monetary policy is that suppliers who would expect to benefit from an expansionary monetary policy would be free to independently create an appropriate amount of new money (enabling, among other things, an enterprise like Guerrilla Goulash to launch entirely without capital). This could empower suppliers to take initiative in more efficiently utilizing available resources according to their first-hand knowledge of the industry: a sort of self-sovereign stimulus.

⁴⁴ See [A Free Money Miracle?](#) (Goodwin 2013).

5.4.4. Monetary taxation tools and liquidity in currency exchange markets

Finally, readers should note that the special case of setting a rate of demurrage equal to the rate of money creation could act like a redistributive wealth tax (inasmuch as wealth resides in currency and not in assets). As “old” money slowly expires from the economy, it could be reborn in an egalitarian way into the wallets of every living person.⁴⁵ We can imagine a system in which all suppliers agree to set a minimum universal rate of demurrage in their currencies, in the hopes of creating a society resistant to the compounding inequalities of untaxed, multi-generational inherited wealth.

This sort of global taxation system would guarantee a minimum level of liquidity in the currency exchange market, since recipients of “reborn” UBI currencies would continually seek to trade them for their preferred currencies.

5.5. The big picture

In the same way that labor unions can strike to improve their working conditions, suppliers (*pull* authorities) today wield the power to boycott undesirable currencies. Those who hold the factors of production therefore have the power, whether they know it or not, to transform our entire monetary system.

An ecosystem of supplier-issued UBI currencies could actually replace currency as we know it. Imagine if every supplier in the world were to issue and manage their own currency. The availability and qualities of different currencies would start to map onto the real industries they represent. Perhaps there would be separate dollars not just for labor unions but also for farmers’ markets, textile manufacturers, electricity providers, artist collectives, etc.

Meanwhile, every living person would benefit equally from seigniorage due to economic growth, each acting as a co-producer of the money supply. Currency exchanges would be constantly active, as global UBI recipients quickly opt to trade their newly-minted, fractional amounts of foreign currencies for their desired local consumer currencies. Most of this could happen behind the scenes; the average consumer would not sit at a desk trading currencies all day, since this could be done automatically. It is possible that the consumer’s digital wallet might be programmed to normally hold a safe, diverse basket of currencies, and only buy a necessary currency at the exact moment of purchase. On the other hand, consumers would tend to gravitate towards preferentially holding local supplier currencies, since this is both what they use regularly and would represent the industries they know and trust.

6. Closing Remarks

In creating a multi-centered system of monetary governance, this scheme can be seen as a reaction to what Bernard Lietaer termed a “monetary monoculture.”⁴⁶ By removing decisions of

⁴⁵ This is the philosophy of the [Relative Theory of Money](#) (Laborde 2012), which inspired the active crypto UBI project [Monnaie Libre G1](#). For an abbreviated explainer see [The Relative Theory of Money in Detail](#) (Bultot 2016).

⁴⁶ [Why an Economy needs more than one Currency: the Scientific Evidence](#) (Lietaer 2015).

monetary policy from banks and states, and delivering them to those who hold the factors of production, we take a step closer to breaking down that monoculture. Policy decisions would fall to modular industry authorities, each free to take independent action according to first-hand industry information. Meanwhile, different currencies would accumulate in different regions or sectors of society, insulating each from the others' misfortunes. A diversity of currencies organized in such a way would make for a more resilient monetary system—one legitimized not by the top-down authority of debt-issuing states and banks, but rather by the real availability of resources.

With this design, we have made apparent one source of power which already governs our economies (long known to unionists): *pull* authorities, or suppliers. To the extent that suppliers are more representative of their communities than banks, this appears to be a strong starting point for a fair economy. Nevertheless, markets are not a replacement for democracy, and the system described here is a loose framework that is open to interpretation.

For example, we have implied that the optimal scenario is one in which suppliers issue an amount of currency to maximize profits. But if the framework is developed further, democratic constraints are conceivable that may emphasize principles of sustainability or sufficiency alongside profit. This could take the form of limitations on negative externalities, or perhaps supplier-backed but *community-governed* currencies. Additionally, we would hope that systems would arise which allow for the accumulation of community funds. These are paths of inquiry which we leave open.

Whatever the result, the emphasis is on transforming a centralized and undemocratic system of monetary governance into one that is multi-centered and friendly to democratic reform.

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